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Conference Abstract

Enhancing Acoustic Data Mobilization: A User-Friendly Data Platform for the Asian Soundscape Monitoring Network

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Abstract

Passive Acoustic Monitoring (PAM) has emerged as a crucial tool in monitoring efforts to track environmental changes and evaluate conservation measures in response to the biodiversity crisis (Sugai et al. 2018). PAM now offers long-term and continuous insights into biodiversity, using acoustic indices correlating with biodiversity and deep-learning tools to aid in the detection and identification of animal sounds (Sueur et al. 2014, Kahl et al. 2021, Wu et al. 2022). However, managing and mobilizing original recordings remains challenging due to their large size and lack of structure, hindering broader applications of these valuable data. Established in 2014 by Academia Sinica and Taiwan Forestry Research Institute, the Asian Soundscape Monitoring Network has amassed over 20 million minutes of audible and ultrasonic recordings from diverse landscapes, including forests, wetlands, urban parks and farmlands across Malaysia, Thailand, Taiwan and Vietnam. To enhance data mobilization and utilization, we developed a user-friendly data platform enabling browsing, searching, visualization, exploration and retrieval of the original recordings (Fig. 1), as well as derived data such as acoustic indices and species occurrences, and associated weather records (Fig. 2) The platform also allows users to visualize the temporal dynamics of the soundscape and identify acoustic events at monitoring sites by examining long-term spectrograms and time series of acoustic indices (Fig. 3). Detailed information about the monitoring sites and recorder deployment is

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provided. Each recording is tagged with a Creative Commons license, and a unique Archival Resource Key is assigned to every data retrieval for persistent identification, facilitating data reuse. Additionally, recordings containing human voices are identified and restricted to protect privacy. Our aim with this data platform is to streamline the mobilization of acoustic data, foster diverse applications, and enhance the overall value of the data.

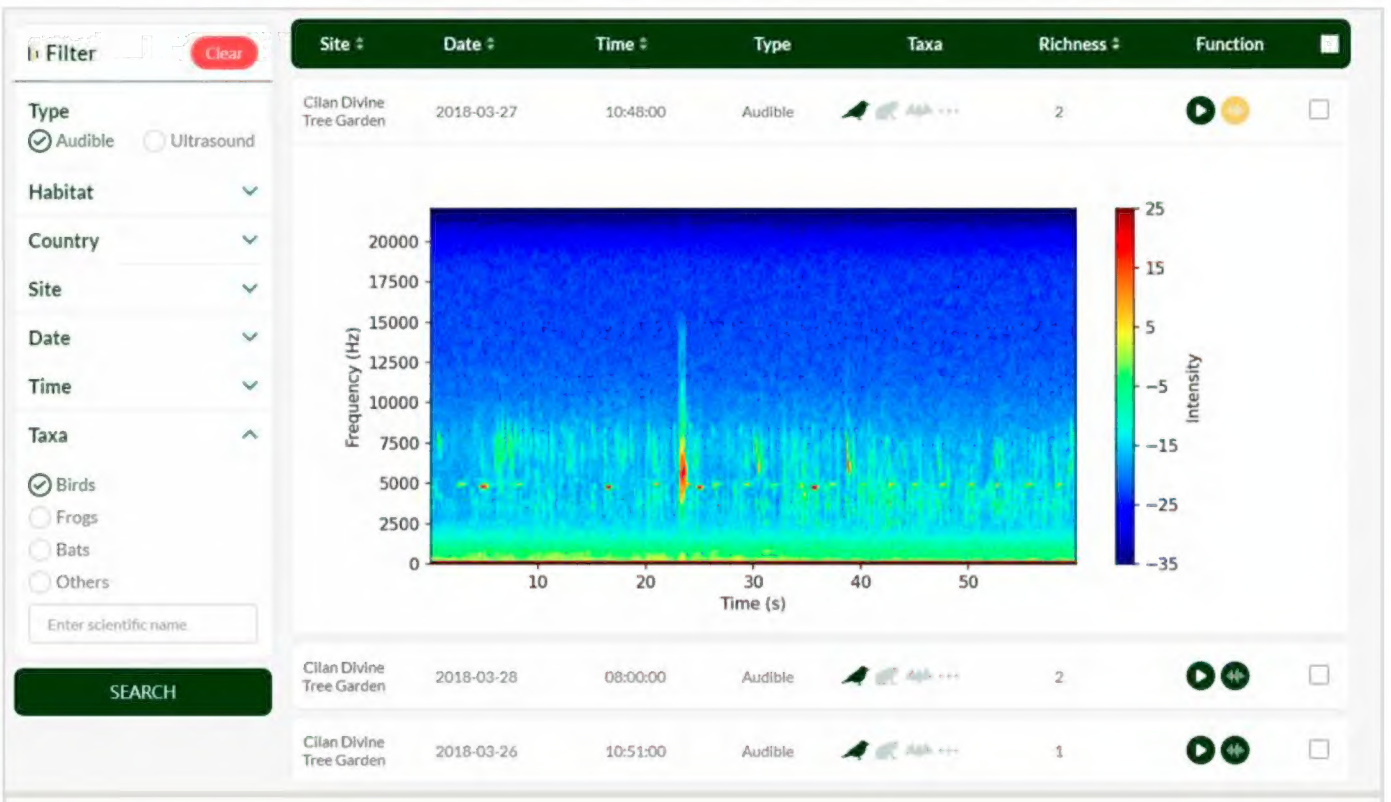

Figure 1.

Recording search interface. Users can search for recordings by the location and habitat type of monitoring sites, the date and time when the recordings were collected, and the species whose vocalizations were identified within the recordings.

Keywords

acoustic index, Archival Resource Key, audio recording, long-term spectrogram, passive acoustic monitoring, species occurrence

Presenting author

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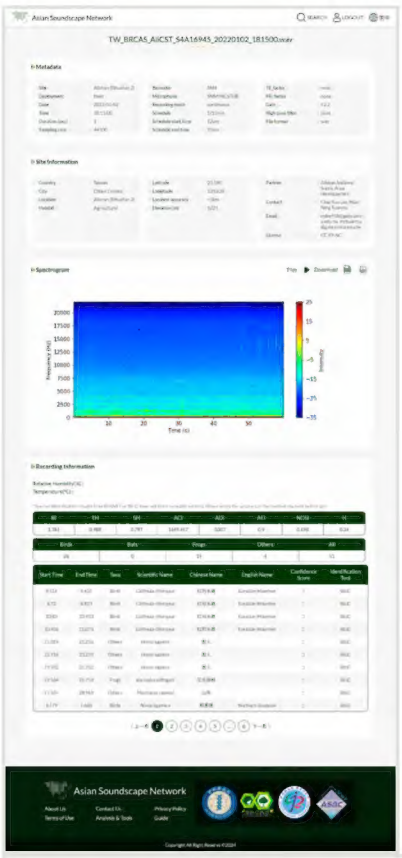

Figure 2.

Data associated with each recording. For each recording, the platform provides the spectrogram, the values of several acoustic indices, species whose vocalizations were identified, and associated weather records. Here shows a recording collected at a tea farm in Bihushan, Ali Mountain, Taiwan at 18:15 on January 2nd, 2022, (TW_BRCAS_AliCST_S4A16945_20220102_181500.wav) as an example.

Figure 3.

Data associated with each monitoring site. For each site, the platform provides the long-term spectrogram, a list of the species whose vocalizations were identified, and time series of acoustic indices and weather records. Here shows the site page of Cilan as an example.

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Conflicts of interest

The authors have declared that no competing interests exist.

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